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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,959	10/15/2003	W. Steven Conner	1020.P16717	8800

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EXAMINER	
YANG, CLARA I	
ART UNIT	**PAPER NUMBER**
2612	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/686,959	CONNER ET AL.	
	Examiner	Art Unit	
	Clara Yang	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-27* is/are pending in the application.

4a) Of the above claim(s) *18-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) ✓
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 12 December 2006 have been fully considered but they are not persuasive. On page 14, the applicant submits that Mushkin "actually teaches away from using the alternating current to adjust the local clock." The examiner respectfully disagrees. In the section cited by the applicant (i.e., Col. 11, lines 45-49), Mushkin teaches deriving a timing signal from the center (i.e., average) of a received synchronization signal and using the timing signal to adjust/maintain the internal clock in each node such that each node properly times the generation of frame occupation signals when the node is transmitting (see Col. 4, lines 28-32 and 53-56; Col. 7, lines 45-49; Col. 11, lines 28-41; and Col. 15, lines 1-5). In Col. 12, lines 13-18, however, Mushkin teaches deriving a timing signal from an external source (e.g., a powerline) instead of from a received synchronization signal and using the timing signal to derive the frame timing. It is understood that the timing signal derived from a powerline, like the timing signal derived from received synchronization signals, is used to adjust the internal clock in each node such that each node properly times the generation of frame occupation signals when the node is transmitting. Consequently, Mushkin does teach a node that "adjust[s] a local clock based upon the common timing signal," as now called for in claims 1, 6, 9, 11, 14, and 16, and claims 1, 2, and 4-17 remain rejected as being unpatentable over Lueker in view of Mushkin.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2, and 4-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lueker et al. (US 6,130,896) in view of Mushkin et al. (US 6,888,819).

Referring to claims 1, 5, 6, and 8, as shown in Fig. 1, Lueker teaches a wireless communication system formed by access points (AP) 54 and 56, portable computer 38, an info pad 40 (such as a personal digital assistant), and combination telephone 42 (see Col. 2, lines 58-61). Each AP, as shown in Figs. 2 and 3, comprises (a) physical layer circuitry 62 (i.e., wireless transceiver) for transmitting radio frequency (RF) signals to and receiving RF signals from untethered devices (hereinafter referred to as "wireless devices"), such as portable computer 38, an info pad 40, and combination telephone 42 (see Col. 2, lines 58-61 and 66-67; and Col. 3, lines 1-3 and 33-35), as called for in claims 1 and 6; (b) antenna 64 coupled to physical layer circuitry 62 (see Col. 2, line 67 and Col. 3, lines 1-3 and 33-35), as called for in claims 1 and 8; (c) physical layer circuitry 78 (i.e., a wireline transceiver that is a power line transceiver) for transmitting and receiving information over power line network 10 (see Col. 3, lines 27-32 and 36-41), as

called for in claims 1, 5, and 6; and (d) microprocessor 84, which performs the operations of medium access controllers (MAC) 66 and 74 and router 70, coupled to physical layer circuitry 62 and physical layer circuitry 78 (see Col. 3, lines 4-19 and Col. 4, lines 7-9), as called for in claims 1 and 6. Per Lueker, each AP exchanges data via RF signals with wireless devices and communicates control messages with other APs via power line 14 (i.e., a wireline network) to coordinate at least one aspect of the wireless communication with wireless devices to avoid two or more APs communicating with the same wireless device (see Col. 2, lines 58-61 and Col. 5, lines 18-39), as called for in claims 1 and 6. Lueker, however, fails to teach each AP (1) receiving a common timing signal from power line 14, wherein the common timing signal comprises an alternating current (AC) oscillating at a fixed frequency, and (2) adjusting a local clock based upon the common timing signal, as called for in claims 1 and 6.

In an analogous art, Mushkin teaches a node device 150, which includes a switch, router, workstation, terminal, etc. (see Col. 7, lines 50-53), as shown in Figs. 10 and 11, comprising host interface 166 that transmits information to and receives information from a host device 162 (see Col. 14, lines 11-14). Because host interface 166 can transmit and receive a carrier wave signal (i.e., a wireless signal), host interface 166 must include (a) a wireless transceiver coupled to (b) an antenna. Mushkin's node device 150 also includes (c) transmit (TX) circuitry 158, receive (RX) circuitry 160, and media coupling circuitry 152 forming a wireline transceiver that transmits and receives information over media 164, which is a power line grid (i.e., wireline network) (see Col. 1, lines 24-35 and Col. 14, lines 15-19); and (d) media access controller (MAC) 156 and application processor 154 forming a processor coupled to the wireline and wireless transceivers (see Col. 14, lines 9-24). Per Mushkin, node device 15 receives (1) frame occupation signals (i.e., control messages) over media 164 to coordinate communication over media 164 and

(2) a common timing signal, which is a 60 Hz AC sine wave (i.e., an alternating current oscillating at a fixed frequency), from media 164, (see Col. 7, lines 30-38; Col. 8, lines 11-14 and 37-44; and Col. 12, lines 13-18). In one alternative, Mushkin teaches deriving a timing signal from the center (i.e., average) of a received synchronization signal and using the timing signal to adjust/maintain the internal clock in each node such that each node properly times the generation of frame occupation signals when the node is transmitting (see Col. 4, lines 28-32 and 53-56; Col. 7, lines 45-49; Col. 11, lines 28-41; and Col. 15, lines 1-5). In another alternative, however, Mushkin teaches deriving a timing signal from an external source, such as a powerline, and using the timing signal to derive the frame timing (see Col. 12, lines 13-18). It is understood that the timing signal derived from a powerline, like the timing signal derived from received synchronization signals, is used to adjust the internal clock in each node such that each node properly times the generation of frame occupation signals when the node is transmitting. Consequently, Mushkin teaches a node device 15 that (3) adjusts a local clock based upon the common timing signal.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lueker's AP as taught by Mushkin because an AP that (1) receives a timing signal comprising a 60 Hz AC sine wave from power line 14 and (2) adjusts a local clock based upon the common timing signal enables power line 14 to be shared by APs and devices of other networks without collisions and hidden node problems by (1) synchronizing all the devices attached to power line 14, which causes the frame timing for all the devices to be identical at all frames, and (2) assigning specific time slots for the transmission of a frame occupation signal (see Mushkin, Col. 2, lines 2-8; Col. 7, lines 30-38; and Col. 8, lines 11-14).

Regarding claim 2, as explained in the preceding rejection of claims 1, 5, 6, and 8, Lueker's wireless communication system comprises wireless APs 54 and 56.

Regarding claims 4 and 7, as it is known to those of ordinary skill in the art, the term "Quality of Service" (QoS) refers to a broad collection of networking technologies and techniques for providing guarantees on the ability of a network to deliver predictable results. Lueker teaches that each APs performs a point coordination operation with other APs to ensure that each wireless device is assigned to only one AP (i.e., one aspect of wireless data communication to be coordinated) to avoid incorrect results, wherein the point coordination involves each AP communicating with each other to decide which AP is assigned to which wireless device (see Col. 5, lines 11-39); it is understood that the point coordination (i.e., exchange of information) is related to the enforcement of a QoS because ensuring that each wireless device is assigned to only one AP improves throughput on the LAN by reducing traffic and avoids undesired results, such as a printer receiving a wireless device's print command from two different APs and printing twice.

Referring to claims 9-12 and 14, Lueker's communication system, as shown in Fig. 1, comprises: (a) power line network 10 (see Col. 2, lines 31-34), as called for in claims 9 and 10; and (b) APs 54 and 56 (i.e., wireless nodes) coupled to power line network 10 via power line 14, wherein each AP communicates data messages with wireless devices (i.e., other wireless nodes) via RF signals and communicates control messages with other APs via power line 14 to ensure that each wireless device is assigned to only one AP (i.e., coordinate one or more aspects of the communication of messages over the wireless channel) (see Col. 2, lines 58-61 and Col. 5, lines 11-39), as called for in claims 9, 11, 12, and 14. Lueker, however, fails to teach each AP (1) receiving a common timing signal from power line 14, wherein the common timing signal

comprises an alternating current (AC) oscillating at a fixed frequency, and (2) adjusting a local clock based upon the common timing signal, as called for in claims 9, 11, and 14.

Per Mushkin, node device 15 receives (1) frame occupation signals (i.e., control messages) over media 164 to coordinate communication over media 164 and (2) a common timing signal, which is a 60 Hz AC sine wave (i.e., an alternating current oscillating at a fixed frequency), from media 164, (see Col. 7, lines 30-38; Col. 8, lines 11-14 and 37-44; and Col. 12, lines 13-18). And as explained in the previous rejection of claims 1 and 6, Mushkin further teaches that node device 15 (3) adjusts a local clock based upon the common timing signal (see Col. 4, lines 28-32 and 53-56; Col. 7, lines 45-49; Col. 11, lines 28-41; Col. 12, lines 13-18; and Col. 15, lines 1-5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lueker's AP as taught by Mushkin because an AP that (1) receives a timing signal comprising a 60 Hz AC sine wave from power line 14 and (2) adjusts a local clock based upon the common timing signal enables power line 14 to be shared by APs and devices of other networks without collisions and hidden node problems by (1) synchronizing all the devices attached to power line 14, which causes the frame timing for all the devices to be identical at all frames, and (2) assigning specific time slots for the transmission of a frame occupation signal (see Mushkin, Col. 2, lines 2-8; Col. 7, lines 30-38; and Col. 8, lines 11-14).

Regarding claims 13 and 15, Lueker teaches the each AP exchanges information with each other, wherein the information is related to the enforcement of a QoS, as explained in the rejection of claims 4 and 7.

Referring to claims 16 and 17, as shown in Figs. 2 and 3, Lueker's AP (i.e., article) comprises a storage medium storing software that enables microprocessor 84 to perform operations such as error checking, translating, communicating data messages via RF signals, routing signals from an RF protocol to a power line protocol and vice versa, and communicating one or more control messages via power line 14 (i.e., wireline) to ensure that each wireless device is assigned to only one AP (i.e., to coordinate one or more aspects of the communication of messages over the wireless channel) (see Col. 2, lines 58-61; Col. 3, lines 4-19 and 27-41; Col. 4, lines 7-9; and Col. 5, lines 11-39). Lueker, however, fails to teach each AP's storage medium having software that enables microprocessor 84 to (1) receive a common timing signal from power line 14, wherein the common timing signal comprises an alternating current (AC) oscillating at a fixed frequency, and (2) adjust a local clock based upon the common timing signal, as called for in claim 16.

Per Mushkin, node device 15 receives (1) frame occupation signals (i.e., control messages) over media 164 to coordinate communication over media 164 and (2) a common timing signal, which is a 60 Hz AC sine wave (i.e., an alternating current oscillating at a fixed frequency), from media 164, (see Col. 7, lines 30-38; Col. 8, lines 11-14 and 37-44; and Col. 12, lines 13-18). Mushkin further teaches, as explained in the previous rejections of claims 1, 6, 9, 11, and 14, that node device 15 (3) adjusts a local clock based upon the common timing signal (see Col. 4, lines 28-32 and 53-56; Col. 7, lines 45-49; Col. 11, lines 28-41; Col. 12, lines 13-18; and Col. 15, lines 1-5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lueker's AP as taught by Mushkin because an AP that (1) receives a timing signal comprising a 60 Hz AC sine wave from power line 14 and (2) adjusts a

local clock based upon the common timing signal enables power line 14 to be shared by APs and devices of other networks without collisions and hidden node problems by (1) synchronizing all the devices attached to power line 14, which causes the frame timing for all the devices to be identical at all frames, and (2) assigning specific time slots for the transmission of a frame occupation signal (see Mushkin, Col. 2, lines 2-8; Col. 7, lines 30-38; and Col. 8, lines 11-14).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Bridgewater et al. (US 2004/0136367) teaches a network comprising nodes that uses an AC power signal to adjust its local clock.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clara Yang whose telephone number is (571) 272-3062. The examiner can normally be reached on Tuesdays, 1:00-2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on (571) 272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CY
20 February 2007

BRIAN ZIMMERMAN
PRIMARY EXAMINER